



A Survey for the Southern Leopard Frog (*Rana sphenoccephala*) on Long Island

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ABSTRACT

The southern leopard frog (*Rana sphenoccephala*) was once one of the most common frog species on Long Island. However, over the last several decades, populations have declined rapidly and the southern leopard frog may be extirpated from Long Island. In order to assess the status of *R. sphenoccephala* on Long Island, all wetlands on the island with suitable habitat were surveyed. A number of historic leopard frog sites and other areas considered viable within the previous range of the species were thoroughly surveyed at least once in an attempt to document any remaining populations. The southern leopard frog was not seen at any of the sites that were evaluated. However, this still does not confirm that this species no longer exists on Long Island. There may still be small, very localized populations which could only be identified during the calling season from Late March to early May, when the species is most easily found.

INTRODUCTION

The southern leopard frog (*Rana sphenoccephala*) is a wide ranging species that can be found from Long Island south to Florida, and through the Midwest to Texas and Oklahoma (Conant and Collins, 1998). Southern leopard frogs will breed in a variety of habitats including ditches, wet meadows, seasonal ponds, wooded swamps and sediment basins (Conant and Collins, 1998). On Long Island, they have historically favored open, grassy habitats like farm ponds (Latham, 1971) citation. Although the primary breeding season is in March and early April, southern leopard frogs have been known to breed in every month of the year. Leopard frogs move considerable distances from water, especially in wet grasslands or damp woodlands.

The southern leopard frog was one of the most common frog species on Long Island in the early 1900's (Overton, 1914; Noble, 1927; Turrell, 1939; Latham, 1971). It remained common in many areas until recently (the past 20 – 40 years), when it declined throughout the island. This frog may now be extirpated from the entirety of Long Island. Many factors may have contributed to their decline including disease, invasive vegetation, habitat change and succession, contaminants, and overcollecting. The southern leopard frog is currently a species of special concern in New York State, however, there have not been any confirmed records on Long Island since the early 1990's.

The objective of this project was to develop an understanding of the current status of leopard frogs on Long Island, to establish theories regarding potential causes of the decline, and to locate any remaining southern leopard frog populations that may still exist. If found, they may be put into a breeding program and reintroduced to areas they were found in the past as part of a future research project.



Figure 1: Examples of southern leopard frog habitat from the New Jersey Pine Barrens.

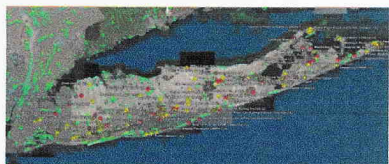


Figure 2: A map of primary, secondary, and tertiary southern leopard frog sites on Long Island. Sites with red marks are historic sites. Other potential sites are in yellow.

METHODS AND MATERIALS

Prior to the start of our project, we visited several known and currently active southern leopard frog sites in the New Jersey Pine Barrens to establish reference sites (Figure 1). These sites were visited several times during the year to provide a baseline for expected behavior and activity to apply to our research on Long Island.

Before entering the field on Long Island, wetland sites were selected using historic locality information from the literature and visits to the American Museum of Natural History and the New York State Museum. We also used anecdotal records from local naturalists. We then used the program Google Earth (Figure 2) to analyze aerial photographs and find historic sites and other wetlands with suitable habitat to create a project map (Figures 3 and 4). We classified sites into three groups: primary, secondary, and tertiary. Primary sites were historic leopard frog sites.

Secondary sites were areas with appropriate habitat. Tertiary sites were wetlands that could potentially hold a remnant leopard frog population, but lacked certain characteristics of ideal leopard frog habitats.

We conducted walking pedestrian surveys at these sites and also conducted calling surveys. We inspected the perimeter of all accessible wetlands and focused on shallow, open, grassy areas. We used a tapeplayer and played the calls of southern leopard frogs in an attempt to induce the frogs to call. We also used dipnets to capture any larval amphibians in the wetlands that were surveyed.



Figure 3: An example of suitable southern leopard frog habitat from a historic leopard frog site on Long Island.



Figure 4: Examples of poor southern leopard frog habitat from Long Island. The area on the left is a swampy, closed canopy wetland. The area on the right is being overtaken by *Phragmites*, which is the tall, stalk-like plants in the background.



Figure 5: A close relative of the southern leopard frog, the pickerel frog. This species is found near shallow water in open, grassy areas, just like the southern leopard frog. However, unlike the leopard frog, the pickerel frog is fairly common on Long Island.



Figure 6: A bull frog (left) and a green frog (right). In places where leopard frogs were once abundant, bull frogs and green frogs are now very common. It is possible that they have outcompeted the leopard frogs.

RESULTS

After surveying 53 primary, 86 secondary, and 41 tertiary sites on the island, we did not find or confirm any surviving leopard frog populations on Long Island. However, we did receive reliable reports of southern leopard frogs from Montauk and Staten Island. We did document several other species of frogs including green frogs (*R. clamitans melanota*), bull frogs (*R. catesbeiana*), spring peepers (*Pseudacris crucifer*), gray tree frogs (*Hyla versicolor*), Fowler's toads (*Bufo fowleri*), eastern spadefoot toads (*Scaphiopus holbrookii holbrookii*), and the closest relative to the leopard frog, the pickerel frog (*R. palustris*) (Figure 5).

DISCUSSION

The two supposed remaining southern leopard frog populations in Montauk and on Staten Island must be confirmed in the near future. These populations could be located, captured, used for a captive breeding program. The frogs could then be protected, used to research the decline, and ultimately used to conduct a possible reintroduction project at other historic sites in an attempt to re-establish the species.

After surveying all of the sites we realized that many of the historic sites have changed dramatically since the early 1900's. Many farm ponds have succeeded into forested ponds. Furthermore, *Phragmites*, an aggressive invasive plant has overtaken many wetlands. Both processes may crowd out leopard frogs, as they prefer open areas.

However, we did survey several historical sites on Long Island with ideal southern leopard frog habitat, but did not see any leopard frogs at these sites. The absence of the species from these areas is alarming and may indicate a different, more subtle cause for this decline, such as disease, contamination, or competition (Figure 6). In the future, environmental samples could be taken from these sites to determine the reason for the decline of this species.

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